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Examiner's Manual - Driving Situations Test

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Examiner's Manual – Driving Situations Test

Principal Investigators

G.R. Engel
M. Townsend
Engel & Townsend Consultants
Toronto, Ontario

Project Monitor

L.V. Clifford
Research Officer
Human Factors Section, MTC

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ABSTRACT

This manual contains all the technical details that are needed to understand how a Driving Situations Test was constructed; how the test is to be administered, scored, and interpreted; and how to evaluate the validity and reliability of the test. A separate report "Examiner's Manual - Driving Knowledge Test" DE-83-02 contains the technical details of the construction of a driving knowledge test. A third report "Development of Driver Education Tests - Summary Report" DE-83-01 does not repeat all the details given in the manuals but instead gives the general reader an overview of how the tests were developed.

The two tests were designed to be used in evaluating the Ontario Ministry of Transportation and Communications' high school driver education program. One test is a test of knowledge about safe driving; the other is a test of an individual's sensitivity to accident risks in different driving situations.

Both tests meet standards of acceptable validity and reliability as defined by modern testing literature, and by industrial usage. The tests should be useful as intermediate instruments for evaluating driver education.

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DRIVING SITUATIONS TEST

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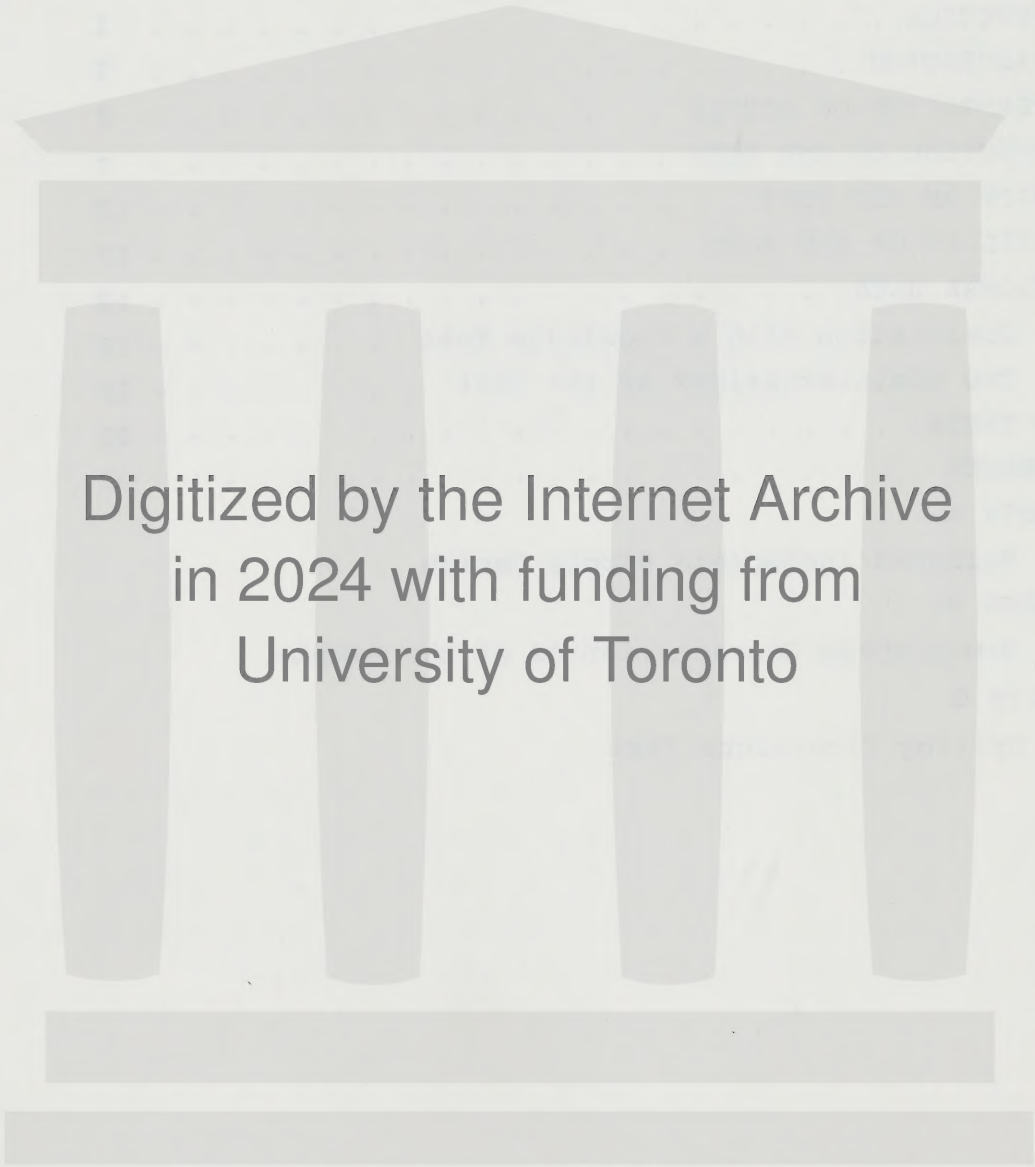

INTRODUCTION

One of the goals of driver education is to teach people to drive defensively. Defensive driving involves not only an awareness of one's total driving environment but also an awareness of potentially dangerous or risky situations. The Driving Situations Test was designed to measure a driver's perception of the amount of risk involved in various driving situations. The test was developed to be used in evaluating the Ministry of Transportation and Communication's revised High School Driver Education Programme.

The test is made up of 40 scenarios describing different driving situations. Each scenario describes the circumstances of a driving trip that a person is taking or is about to take. The circumstances described in the different scenarios represent different amounts of accident risk. The examinee's task in each scenario is to rate the amount of trade-off between what is to be gained by taking the trip against the amount of risk involved in taking the trip.

Each scenario contains three out of five possible driving factors. The possible factors are:

- the physiological state of the driver
- the behaviour of the driver
- the condition of the vehicle
- the weather or road conditions
- the reason for driving

Thus, in a particular scenario, the examinee might be told the state of the driver, the condition of the vehicle, and the reason for driving. The examinee would then rate the extent to which driving would outweigh, or not outweigh, the risk of an accident.

The test has been validated and crossvalidated on a sample of 675 drivers representing a relatively wide range of driving experience and ability.

The contents of this manual are intended to conform to the American Psychological Association's "Standards for Educational and Psychological Tests and Manuals".[1] The following sections of the manual describe:

- How to administer and score the test
- How to interpret scores
- The construction of the test
- Data on the test's validity and reliability
- Norms Table
- Technical notes and auxillary tables (Appendices)

ADMINISTRATION

Qualifications of Examiners

This test can be administered, scored, and interpreted, by persons who normally use tests in education and industry, including driver education classroom instructors. Persons using this test should have a good understanding of the sections in this manual describing the test's reliability and validity.

Administering the Test

1. Self-Administering
   The test is self-administered. Have the examinee read the instructions on the front of the test, and then proceed with answering the items using the answer sheet.
2. Supervision
   The test can be administered either individually or to a group under the examiner's supervision.

3. Time

   There is no time limit. The test normally takes 10-20 minutes. The examinee should be encouraged to work quickly and to give his or her immediate reactions rather than long thought-out responses.

4. Examinee's Questions

   There are no "right" or "wrong" answers to any item. The examinee should be encouraged to give an answer for every item. The examiner should be careful not to bias the examinee's scores by saying anything that would cause examinees to give ratings that would reflect anything other than their honest judgements of the different scenarios.

Scoring

The examinees mark their answers on a separate answer sheet. An examinee's score is the arithmetic average of their answers. Add up all the numbers circled on the answer sheet and divide by the total number of questions answered (usually 40).

A maximum score is 7.0 and a minimum score is 1.0.

INTERPRETATION OF SCORES

Before interpreting a score you should be aware that examinees can bias their scores by simply giving low or high rating values irrespective of how they actually perceive the amount of risk in the scenarios. This could happen if examinees had prior knowledge about the norms for the test, or if they had been instructed by someone to bias their ratings in a certain direction.

The Meaning of a Score

There are two ways to interpret the score. Firstly, an

examinee gives a rating on a one to seven point scale of the gain to be made from a trip relative to the risk of an accident. Therefore, the lower the score, the more the examinee felt that the average risk of driving in the different situations outweighed the potential gains. Conversely, the higher the total score, the more the examinee felt that the potential gain from driving in the situations outweighed the potential risks.

In other words, LOW SCORES REPRESENT LOW RISK-TAKING ATTITUDES, and HIGH SCORES REPRESENT HIGH RISK-TAKING ATTITUDES.

The Norms Table

The second way to interpret a score is to compare it with the norms for professional drivers, nine-point drivers and driver education students; the drivers on which the test was validated. The table shows separate percentile norms for professional drivers, nine-point drivers and driver education students.

The professional driver norms represent the scores of drivers whose full-time occupation is driving in a fleet in which drivers must meet and maintain a high standard of safe driving. The nine-point driver norms represent the scores of Ontario drivers who have accumulated nine or more demerit points on their driving records as a result of charges for a variety of traffic offenses. The norms given for the students represent the scores of students at the completion of high school driver education courses based on the text "Power Under Control" and taught in the first and last terms of the 1981-82 school year.

To compare an examinee's score with the norms, first note where it lies on the raw score scale. Then look across the table and read off the corresponding percentiles for professional, nine-point or student drivers.

The percentile corresponding to a particular raw score represents the percentage of people in the norms group who obtained less than that score. For example, a raw score of 2.8 corresponds to the 93rd percentile on the professional scale; to the 71st percentile on the nine-point scale; and to the 51st percentile on the student scale. This means that the examinee's score of 2.8 is greater than 93% of the scores obtained by the professional group. By the same token, it is greater than scores obtained by about 70% of the nine-point drivers, and about 50% of the student drivers.

The Accuracy of an Individual Score

The score that an individual examinee gets on this test gives a measure of his or her tendency to see greater or lesser amounts of risk in different driving situations. However, the score is not an exact measure. If the examinee had taken the test on another day; or if the test had contained more items; or if the test had contained a few slightly different items, then the examinee might have obtained a slightly different score. Because of these considerations an individual score on this test should not be treated as a precise measure of risk taking. Instead it should be treated as an approximate measure that is subject to a certain amount of error.

Since a test score is subject to error, it is important to consider an individual's score in light of the amount of error that it might be subject to. The usual way to express this error is by the test's Standard Error (S.E.). The Standard Error of a test is determined by the variability or dispersion of scores that different people in the Norms groups obtained on the test; and by the reliability of the test. When a test has high reliability the Standard Error will be small, and when it has low reliability, the Standard Error will be large.

The Standard Error for this test is generally about 0.20 score points. However, its value varies depending on the driver group that the examinee belongs to. See Table VI in the section on reliability for these different values.

The easiest way to think about the meaning of a Standard Error is as follows: The scores that an individual might get on the test will have a distribution with a particular mean (usually called the true score), and a standard deviation equal to the Standard Error of the test. This way of thinking about Standard Error can be used to produce simple rules for dealing with common questions that arise about an individual's score. Here are the rules that will cover most situations:

1. If an individual took the test twice, the two scores should not differ by more than two S.E.'s, 95% of the time.
2. If two individuals have scores that differ by less than two S.E.'s, there is probably no material difference in the way they perceive driving risk.
3. If you are using a cutoff score; to classify people into satisfactory versus unsatisfactory for example; and you want to be 95% certain that a person's score represents an attitude exceeding the cutoff score; then you would treat a score as satisfactory only when it exceeds the cutoff score by two S.E.'s.
4. If you want to give a person the benefit of the doubt in the cutoff score situation in Rule 3, you would treat a score as unsatisfactory only if it fell more than two S.E.'s below the cutoff.

CONSTRUCTION OF THE TEST

The form and content of the test are based on concepts underlying decision theory [2] and on data about classifying accidents according to the most probable cause.[3]

Decision theory has its roots in gambling behaviour. Whether or not a person accepts or rejects a gamble is determined by basically two things; the person's estimates of the likelihood or odds of winning, and the person's subjective feelings about the cost of loosing. An individual's actions will be the result of a trade-off between these two things.

The Driving Situations Test was designed to get a measure of the trade-off drivers are willing to make between driving in a particular situation and the risk of an accident. We used a seven point scale to measure this trade-off. The number "1" represented the case where the amount of risk is much greater than the potential gain in the driving situation. The number "7" represented the case where the potential gain was much greater than the estimated risk. The middle of the scale, the number "4", represented the break-even point or point of indifference.

The scale as it was used on the test is shown in the following illustration.

1	2	3	4	5	6	7
Risk is much greater than Gain			**Risk about equal to Gain**			**Gain is much greater than Risk**

Forty items were constructed, each containing a short scenario describing the circumstances of a trip. The examinee was instructed to give a rating on the seven point scale of the gain to be made from the trip relative to the risk of an accident.

The content of the scenarios was based on accident analysis data in which accident causes were broken down into three major categories; human factors, environmental factors and vehicular factors. Because the majority of accidents were attributed to human factors, we divided this factor into two components; driver behaviour and the physiological state of the driver. A fifth factor, reason for driving, was added to the list of factors so that the content of the test would conform to a decision making problem.

Thus the circumstances for a trip described in a scenario could contain some combination of; an environmental factor, a vehicular factor, a driver behaviour, a physiological driver condition and a stated reason for driving.

Four specific actions or states were defined to represent each of the major factors. For each factor, they were:

The Physiological State of the Driver;

- drugs/alcohol
- fatigue
- visual impairment
- emotional state

The Behaviour or the Driver

- speeding
- tailgating
- disobeying a sign
- no seat belt

The Condition of the Vehicle;

- brakes
- steering
- tires
- general mechanical problem

The Environment;

- snow
- rain
- ice
- fog

The Reason for Driving;

- no compelling reason
- pleasure
- emergency
- obligation to another person

To keep the scenarios short and within the average person's immediate memory span, only three factors were included in any one scenario; for example, a weather condition, a reason for driving and a driver behaviour.

If we tried to include all combinations of the twenty possible states representing the driving situation factors, the total number of items on the test would be 20!/3!17! or 1140 different scenarios. This of course, would be an unreasonably long test. One way to reduce the number of item possibilities would be to randomly select a convenient number of scenarios from the total of 1140. The difficulty with this approach is that there is no way of controlling how often each factor, or state would appear in the test. For example, the resulting test could turn out to be entirely a test of the perceived risk of driving in bad weather. In addition, one of the objectives in constructing the test was to see whether or not drivers would treat different factors, or different combinations of factors, as qualitatively different components in the process of evaluating a driving risk. To overcome these difficulties a different approach was adopted.

To systematically reduce the total number of scenarios, a statistical design called a Balanced Incomplete Blocks [4,5] design was used to make up combinations of factors and states for the scenarios.

Selecting only three factors from the total of five possible factors for each scenario results in 10 possible combinations or blocks of factors. Within all of the blocks, each main factor appears a total of six times, each pair of factors appears a total of three times, and each triplet appears once. Given that there are four actions or states within each factor, the total number of scenarios needed to complete the design is 40. The balancing of the actions or states within each factor block and across blocks was completed so that 12 pairs of states would be present in every block, and only four pairs of states would be absent. A listing of the blocks and the related scenario numbers appears in Appendix A.

The test was administered to three experimental groups of subjects: Professional Drivers, Nine-point Drivers and Driver Education Students.

The professional drivers were chosen from an organization whose drivers must meet and maintain high standards of proficiency and safe driving, and whose full-time occupation was driving passenger-carrying vehicles. Experienced professional drivers represented the criterion group for safe driving.

Nine-point drivers were people who had just completed an interview with a Driver Improvement Counsellor at one of the Ontario Ministry of Transportation and Communication's Driver Control Centres. These were individuals who had accumulated nine or more demerit points on their driving record. These individuals represented a group of drivers charged with unsafe or illegal driving practices.

The students in the sample were from high school driver education programmes sponsored jointly by the Ministry of Education and the Ministry of Transportation and Communications,

offered in the school year 1981-82. The course was based on the text "Power Under Control". These particular students were chosen because this test was designed to be used to evaluate a new high school driver education programme to be introduced into the high schools in the near future.

The experimental group contained 150 professional drivers, 150 nine-point drivers, and 150 driver education students who had just completed their driver education course. The test was crossvalidated on three new groups consisting of 75 professional drivers, 75 nine-point drivers, and 75 students. Subjects were selected for the crossvalidation using the same criteria as the ones used to select subjects for the experimental sample.

Preliminary item analyses performed on the results of the experimental group showed that all of the items served about equally well in discriminating among the three groups; and that all of the items had about the same reliability. This meant that there was nothing to be gained in validity or reliability by removing items from the test. Consequently the test was crossvalidated on a new sample of drivers without any alteration to its content.

The students, in addition to taking the test at the end of their course, also took the test at the beginning of their course. This procedure was meant to show whether or not the test would detect changes in risk perception resulting from a driver education course.

VALIDITY OF THE TEST

The ultimate goal of driver education is to produce safe drivers who are aware of potentially dangerous or risky driving situations. The validity of an instrument for evaluating driver education depends on its ability to measure these qualities in association with safe driving behaviour.

For this test, experienced professional drivers represented the criterion for safe driving. Thus, our basic measure of validity was the extent to which the test would predict professional driver status.

Data in the Norms Table show that professionals generally score below the average for either the nine-point or student groups. In other words, professional drivers are more likely to attribute more risk to the driving situations used in the test than the other two groups of drivers. The means and standard deviations for the professional, nine-point, and student scores are shown in Table I.

TABLE I

Means and Standard Deviations

	N	Mean	S.D.
Professional	225	1.89	.634
Nine-point	225	2.37	.797
Student	225	2.75	.896

Data in Table I and in the Norms Table are based on the combined data for both the experimental and crossvalidation administrations of the test. The data for the student sample

are based on the results of the testing done after the students had completed their driver education programme. The combined data are shown because there were no statistically significant differences between the experimental and the crossvalidation results.

Another indication of the differences between professional and non-professional* drivers is the degree of overlap between the score distributions. Inspection of the percentiles in the Norms Table will show that about 60% of the professionals score lower than about 60% of the nine-point drivers; and about 75% of the professionals score lower than about 75% of the students. In other words, there is very little overlap between the professional and non-professional groups.

Validity coefficients were calculated to determine, firstly, how well the test discriminated between professional and the other groups of drivers; and secondly, to determine the cross-validation stability of the validities found with the experimental samples.

Table II shows validities calculated for discriminating between professionals and students; and not including the nine-point drivers. These validity values are relevant to the problem of evaluating driver education programmes: the problem this test was designed to address.

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* Throughout the manual, the term "non-professional drivers" represents the combined samples of students and nine-point drivers and is not meant to imply a cross-section of all non-professional drivers.

TABLE II

Professional - Student Validities

	N	Validity	Mean	S.D.
Experimental	300	.5197	2.384	.892
Crossvalidation	150	.4079	2.196	.857
Combined	450	.4853	2.321	.886

The professional versus non-professional validity coefficients, means and their associated standard deviations for the experimental, crossvalidation and combined samples, are shown in Table III.

TABLE III

Professional - Non-professional Validities

	N	Validity	Mean	S.D.
Experimental	450	.3866	2.377	.863
Crossvalidation	225	.3438	2.252	.831
Combined	675	.3728	2.336	.856

Table IV (next page) shows the validities for discriminating professional from nine-point drivers.

The validities shown in Tables II through IV are all statistically significant at at least the 0.001 level. In addition, there are no significant differences between the validities obtained from the experimental sample and the validities obtained from the crossvalidation sample.

TABLE IV

Professional - Nine-Point Validities

	N	Validity
Experimental	300	0.292
Crossvalidation	150	0.351
Combined	450	0.313

Since there were no differences between experimental and crossvalidation values, validities based on combined samples are given. However, if one prefers to be conservative, the lower values should be used. In considering the validities shown in Tables II through IV, it should be remembered that the experimental and the crossvalidation samples were given exactly the same test. In a more typical crossvalidation, the test used in the crossvalidation is an edited down version of the experimental test; arrived at by throwing out the weakest items in the experimental test. The process of editing out weak items is, depending on the test, vulnerable to sampling error which results in some good items being incorrectly thrown out, and some weak items being incorrectly kept. Under these circumstances, there is almost certain to be some decrease in the validity obtained on crossvalidation. Since the crossvalidation of the present test was done on an unedited version of the experimental test, there is no reason to expect any decrease in validity on crossvalidation. In fact, there was an apparent, but not significant increase in validity in the case of the professional versus the nine-point drivers.

The validity of a test may sometimes be diluted because

its scores may be correlated with age of the subjects. The average age of the professional and nine-point drivers was higher than the average age of the students. To investigate this possibility, scores of professional, nine-point drivers and students were compared on age. The results of a multiple regression analysis showed no significant effects of age on test scores.

Although the validity coefficients have respectable values for a test of this type, the warning given in the section on Interpretation of Scores needs to be repeated. This test is not like a conventional knowledge or ability test where an examinee either knows the right answers or doesn't know them; or can perform a skill or fail to perform it. On such tests there is no way of directly influencing an examinee's performance on the test. In the case of the present test, there is the possibility that the examinee's score may be influenced by the examiner if the examiner deviates from the directions for administering the test, or gives additional information about the test norms. Therefore, scores on the test should be treated with caution, particularly if there is any suspicion that examinees might have been influenced in this way.

As a general note on validity; validities given in a test manual are always specific to the samples of persons who served as experimental test subjects. The technical notes at the end of this manual give a variety of data about the characteristics of the drivers who served as test subjects here. Users of this test should look at these notes if the test is to be used on populations other than the ones mentioned in this manual. Finally, normative data given in a manual provide guidance, but they are no substitute for data that the test user should collect to provide his or her own local norms.

THE RELIABILITY OF THE TEST

The internal consistency of the test was measured by using the Spearman-Brown odd-even split-half reliability formula. The correlations are given for the experimental, crossvalidation, and combined samples.

TABLE V

Split-half Reliabilities

	N	Reliability
Experimental	450	0.9606
Crossvalidation	450	0.9676
Combined	450	0.9629

These reliabilities are quite high indicating that the test may measure a single factor. Since the individual item reliabilities were all between 0.50 and 0.70, and the items were all highly correlated with one another, this appears to be the case.

As mentioned in the section on interpreting scores, the Standard Error of the test is about 0.20 points. However, the Standard Error varies slightly for different groups. Table VI gives the value of the Standard Error for each driver group.

TABLE VI

Standard Error for Different Driver Groups

	N	Standard Error
Professional	225	0.171
Nine-point	225	0.215
Student	225	0.242

The differences among the Standard Errors for the different groups are primarily due to the fact that the Standard Error typically depends on the level of the score: Scores grouped at one end of a scale, as the professionals' scores are, causes the S.E. to be small. The students' scores tend to spread out further along the scale, and this leads to a larger S.E.

ADDITIONAL DATA

Correlation with a Knowledge Test

This test was developed in conjunction with a test of driving knowledge; the "Driving Knowledge Test". All the drivers in the experimental and the crossvalidation samples took both this test and the knowledge test. The overall correlation between scores on both forms of the knowledge test and scores on this test was, for Form A, -0.380, and for Form B, -0.377.

The negative correlation means that as scores decreased on this test, scores increased on the Driving Knowledge Test. In other words, the more risk the examinee assigned to the driving situations, the higher his or her driving knowledge; and the less risk the examinee assigned to the driving situations, the lower his or her driving knowledge.

This correlation, while not meant to imply evidence for the validity of either test, suggests that there is a moderate and significant relationship between the tendency to perceive risk in various driving situations and knowledge of safe driving.

Having scores on both this test and a driving knowledge test made it possible to calculate a partial correlation between scores on this test and driver status, holding knowledge constant. Although the scenarios in this test do not require a high degree of knowledge about what represents a risky driving situation, such knowledge would nevertheless help an examinee in evaluating the amount of risk in a particular scenario. In fact, it is conceivable that the score on the test could be entirely due to knowledge about driving risk, and have nothing to do with a propensity to gamble against the odds.

The partial correlation between scores on this test and driver status with knowledge held constant, gives a measure of the test's ability to measure risk-taking independent of objective knowledge about risky driving situations. The partial correlation found for the Professionals versus Students (combined experimental and crossvalidation data) is 0.32. This value suggests that, while driving knowledge makes a substantial contribution to the score on this test, the test scores nevertheless represent what might be called a valid measure of driver risk-taking attitudes.

Two Administrations of the Test

As mentioned in the section on the construction of the test, the driver education students wrote the test at the beginning of their course as well as at the end of their course.

The mean score and the standard deviation for both administrations of the test are presented in Table VII.

TABLE VII

Pre- and Post-course Test
Means and Standard Deviations

	Experimental			Crossvalidation		
	N	Mean	S.D.	N	Mean	S.D.
Pre-course Administration	103	2.73	.681	75	2.47	.779
Post-course Administration	103	2.38	.645	75	2.55	.916

Paired t-tests showed that there was a significant decrease in the scores at course completion for the experimental sample ($t = 4.27$); but not for the sample used in the crossvalidation ($t = 0.79$). In other words, students in the experimental sample tended to assign more risk to the driving situations after they had completed their driver education programme; but this trend was not confirmed by the data for the crossvalidation sample. However, in considering these results, keep in mind that the courses were not specifically designed to reduce risk-taking tendencies in the sense that they are defined and measured by this test.

NORMS TABLE

PERCENTILES

	Average Score	Professional Drivers	Nine-Point Drivers	Student Drivers
Gain is much greater than Risk	4.8			99
	4.7			98
	4.6			98
	4.5			97
	4.4			96
	4.3			95
	4.2			94
	4.1		99	94
	4.0		98	91
	3.9		97	89
	3.8		97	87
	3.7		95	85
	3.6		94	82
	3.5		92	79
	3.4		91	75
	3.3	99	88	72
	3.2	98	86	68
	3.1	97	83	64
	3.0	96	79	59
	2.9	95	75	55
	2.8	93	71	51
	2.7	90	67	46
	2.6	87	62	42
	2.5	84	57	38
	2.4	80	52	33
	2.3	75	47	29
	2.2	70	42	26
	2.1	64	37	22
	2.0	58	33	19
	1.9	52	28	16
	1.8	45	24	14
	1.7	39	21	11
	1.6	33	17	9
	1.5	28	14	8
	1.4	23	12	6
	1.3	18	9	5
Risk is much greater than Gain	1.2	14	7	4
	1.1	11	6	3
	1.0	5	4	2

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A P P E N D I X A

Balanced Incomplete Blocks Design

Balanced Incomplete Blocks
Design

Block	Levels	Items	Block	Levels	Items
EVB	E1V1B1 E2V2B2 E3V3B3 E4V4B4	10,12 21,26	EVS	E1V3S1 E2V1S2 E3V4S3 E4V2S4	2,11 19,34
EVR	E1V2R2 E2V4R1 E3V1R3 E4V3R4	14,16 28,35	EBS	E1B3S4 E2B4S3 E3B1S2 E4B2S1	3,23 24,39
EBR	E1B4R3 E2B1R4 E3B2R2 E4B3R1	4,6,22 27	ESR	E1S3R1 E2S1R2 E3S4R4 E4S2R3	13,17 25,32
VBS	V1B4S1 V2B3S2 V3B2S3 V4B1S4	8,15 29,33	VBR	V1B2R4 V2B4R1 V3B1R3 V4B3R2	1,30 31,38
VSR	V1S4R2 V2S3R3 V3S2R1 V4S1R4	5,9,20 37	BSR	B1S3R2 B2S4R1 B3S1R3 B4S2R4	7,18 36,40

Key:

(E) Environment	snow(E1), fog (E2), ice (E3), rain (E4)
(V) Vehicle	brakes (V1), steering (V2), tires (V3), general mechanical problem (V4)
(B) Behaviour	speeding (B1), tailgating (B2), disobey sign (B3), no seat belt (B4)
(S) State	tired (S1), drugs/alcohol (S2), visual impairment (S3), emotional (S4)
(R) Reason	no compelling reason (R1), pleasure (R2), obligation to another person (R3), emergency (R4)

A P P E N D I X B

Demographic Characteristics of Samples

COMBINED SAMPLE CHARACTERISTICS

	Nine-point	Students	Professional
Sex			
Male	92%	46%	100%
Female	8%	54%	
Age			
Mean (S.D.)	29(11)	16.5(3.4)	41(9)
Education			
Mode	12	11	11
Taken Driver Education?			
At High School	44%	100%	0
Commercial Driving School	10%	0	0
Defensive Driving	14%	0	100%
None	32%	0	0
How Long Licenced?			
less than 1 year	1%	99%	0
1 - 3 years	20%	1%	0
4 - 7 years	31%		4%
8 - 15 years	24%		27%
15 or more years	24%		69%
Type of Vehicle Driven			
Car	82%	96%	
Truck (less than 1 ton)	10%	3%	
Truck (more than 1 ton)	7%	1%	
Other	1%	0	100%
Km. Driven per year			
less than 8000	10%	0	3%
8000 - 24000	42%	0	8%
24000 - 50000	29%	0	31%
more than 50000	19%	0	58%
Type of Driving			
for work/getting to work	80%	0	90%
for pleasure	20%	0	10%

	Nine-point	Students	Professional
Violations in past 3 years			
none	0	99%	70%
some	100%	1%	30%
total number reported	288	2	74
Accidents in past 3 years			
none	57%	97%	60%
some	43%	3%	40%
total number reported	100	4	94
Licence ever been suspended			
No	81%	0	98%
Yes	19%	0	2%
Average lengh of time(months)	3	0	3

APPENDIX C

Driving Situations Test

DRIVING SITUATIONS TEST

When you drive you make a trade-off between the risk of an accident and whatever gain you might make from driving in a particular situation. The risk of an accident might depend on things like the weather, the condition of your vehicle, and so on. The gain from driving might be in getting to work, enjoying the scenery, and so on.

The following pages contain short descriptions about people in different driving situations. For each situation you will be asked to give your opinion on how much trade-off the person is making between the risk of an accident and the gain from driving in the situation.

Here is an example of a situation:

> **Coleen is on her way to a party when she notices that her gas pedal keeps getting stuck every time she tries to accelerate. It is starting to rain.**

For your answers, the answer sheet contains a scale for each situation. The scale looks like this:

1	2	3	4	5	6	7
Risk is much greater than Gain			**Risk about equal to Gain**			**Gain is much greater than Risk**

To give your answer, try to put yourself in the situation, and then circle the number on the scale that shows how much risk is being traded against gain. For example, circling:

1 2 3 4 (5) 6 7

would mean that you think the gain somewhat outweighs the risk. Circling "1" would mean you think the risk far outweighs the gain, and so on.

The test takes about 20 minutes. Read each situation carefully, take a short time to consider it as a whole, and then give your answer. There is no time limit but don't try to think out detailed pros and cons of the situation.

If you feel you understand what you are to do, turn the page and start. If you don't understand, ASK!

1	2	3	4	5	6	7
Risk is much greater than Gain			Risk about equal to Gain			Gain is much greater than Risk

Your Name: (Please Print) _____

1.	1	2	3	4	5	6	7	21.	1	2	3	4	5	6	7
2.	1	2	3	4	5	6	7	22.	1	2	3	4	5	6	7
3.	1	2	3	4	5	6	7	23.	1	2	3	4	5	6	7
4.	1	2	3	4	5	6	7	24.	1	2	3	4	5	6	7
5.	1	2	3	4	5	6	7	25.	1	2	3	4	5	6	7
6.	1	2	3	4	5	6	7	26.	1	2	3	4	5	6	7
7.	1	2	3	4	5	6	7	27.	1	2	3	4	5	6	7
8.	1	2	3	4	5	6	7	28.	1	2	3	4	5	6	7
9.	1	2	3	4	5	6	7	29.	1	2	3	4	5	6	7
10.	1	2	3	4	5	6	7	30.	1	2	3	4	5	6	7
11.	1	2	3	4	5	6	7	31.	1	2	3	4	5	6	7
12.	1	2	3	4	5	6	7	32.	1	2	3	4	5	6	7
13.	1	2	3	4	5	6	7	33.	1	2	3	4	5	6	7
14.	1	2	3	4	5	6	7	34.	1	2	3	4	5	6	7
15.	1	2	3	4	5	6	7	35.	1	2	3	4	5	6	7
16.	1	2	3	4	5	6	7	36.	1	2	3	4	5	6	7
17.	1	2	3	4	5	6	7	37.	1	2	3	4	5	6	7
18.	1	2	3	4	5	6	7	38.	1	2	3	4	5	6	7
19.	1	2	3	4	5	6	7	39.	1	2	3	4	5	6	7
20.	1	2	3	4	5	6	7	40.	1	2	3	4	5	6	7

1. Vern is in a hurry to pick up his friends so that they can get to the ball game on time. He is driving about 30 km/h (20 mph) over the speed limit. His rear tires are under-inflated.

2. It is a foggy night and Peggy is driving home from a party. She drank about 4 oz. of alcohol in the last hour and a half. The day before, her mechanic told her that her brakes needed fixing.

3. It is pouring rain and Mike is already tired from the long drive. He is driving about half a car length behind the car ahead.

4. Ed is driving his mother to the nursing home to visit his grandmother. Since it is only a few blocks away they don't bother to wear their seat belts. On their way to the nursing home it starts to snow.

5. Dorothy is feeling very depressed because she failed her exams. She decides that she might feel better if she goes shopping. She is very upset. On her way to the shopping plaza she notices that her car is pulling to one side every time she puts her foot on the brake.

6. It is pouring rain and Marcia decides that it would be a good time to go to the auction sale because the rain would keep the crowds away. On her way there, she goes through a yellow light.

7. Tom is exhausted after football practice. Even though he just wants to go home and sleep, he keeps his promise and drives his friend home. To get home sooner he is taking a short cut to his friend's home by making a left turn at a 'No Left Turn' intersection.

8. Chris just had an argument with his teacher because she accused him of cheating on his exams. He didn't, and was extremely angry about the situation. He is so angry that he exceeds the speed limit by about 30 km/h (20 mph). He also notices his engine is not running very smoothly.

9. Fred lost his glasses, and he is practically blind without them, but since it is his turn to drive the gang to school he decides to drive anyway. On his way to pick up one of the boys he notices that his steering is loose.

10. Lisa knows that she needs new brake linings but she decides to drive on the icy streets anyway. She drives through a Yield sign.

11. It had been a long drive and it is still raining. Janet and her boyfriend are having an argument. Janet's old car has a crack in the steering column and she hasn't had time to get it fixed.

12. Ken has a part-time job at the local garage. He is going to test drive a car that hasn't yet received a certificate of mechanical fitness. Because he is just going to take the car for a short drive he doesn't wear his seat belt. As he is driving out of the garage it begins to rain.

13. There is a severe ice storm in progress but the tryouts for the high school hockey team are still being held this afternoon. Les had been practicing hard and is extremely anxious to make the team. He is really nervous and thinking about the tryouts as he drives through the storm to the arena.

14. Vera promises to drive her friends up north for a skiing weekend. Because of the heavy traffic the snow covered roads have turned to ice. The brakes on Vera's old car are very unreliable.

15. The dog next door was barking all night so Sylvia didn't get much sleep. Although she is extremely tired she decides to drive anyway. The brake linings on her car are almost worn out. She didn't want to crease her dress, so she doesn't wear her seat belt.

16. It is getting dark and a heavy fog is rolling in off the lake. Despite the fact that Betty's friends ask her to stay the night, she decides to drive home anyway. While driving through the fog one of her headlights goes out.

17. Allen promises to drive his friends up north for a weekend of fishing. It is a hot day and so they decide to have a couple of beers just before they start out on their trip. Just as they are leaving the city, the sun disappears and it starts to rain.

18. Joe just had a bad fight with his girlfriend. He decides to "blow off steam" by going for a drive. The car in front of him isn't going fast enough so Joe, in his anger, decides to pull up close behind it.

19. Carol can't see out of her windshield very well because it is covered with dirt. The snow that fell the day before has melted and the streets are now covered in ice. Carol turns on her windshield washers to clean the window but they are broken.

20. Stan and his friends have been smoking marijuana. They persuade Stan to take them for a ride in his car. Just before Stan gets into the car he notices that the rear tires are nearly bald.

21. While Brian is driving along the highway, he notices that his steering is loose. A heavy fog suddenly descends and he can't see the car ahead at all. He decides to tailgate the car ahead so that he can see its tail lights clearly.

22. George slept in again and he knew that if he didn't hurry he would be late for work. His boss had told him that if he was late again he would be fired. It is a very foggy morning and George drives about 30 km/h (20 mph) over the speed limit on his way to work.

23. It is Thursday night and as usual, Harold and the boys got together at the local pub for a few drinks after work. While they are in the pub it starts to rain and the temperature drops considerably. The rain freezes on the streets. On the way home, Harold drives about 25 km/h (10 mph) over the speed limit.

24. Fresh snow covered the ground, but Grace's mother refused to give her the money to buy new skis. She is so angry at her mother that she doesn't stop for the school bus with its lights flashing.

25. Helen has a bad throat infection and her doctor gave her some pills to ease the pain. The pills unfortunately, gave her double vision. Since there is nothing to do at home she decides to go for a drive. There is a fresh fall of snow on the ground.

26. It had been snowing all night. As Don is backing out of his driveway he notices that his brakes are very weak. He drives about 20 km/h (10 mph) over the speed limit.

27. Although the weather forecast calls for freezing rain, Nora decides to drive to the supermarket to pick up groceries and drinks for her party the next night. The rain is freezing on her windshield so she drives closer to the car ahead to see better.

28. It is pouring rain and the autumn leaves that have fallen onto the road make the streets very slippery. Alice is on her way to a job interview and she notices that one of her front tires is slowly going flat.

29. While at the beach a friend accidentally stepped on Edna's glasses and smashed them. Because Edna can't see very well without them, she drives very close to the car ahead to see where she is going. As she is driving along she notices that her front wheel seems loose.

30. Irwin is in a hurry to get to the airport to catch his plane. He felt the car in front of him was going too slow, and decides to pull up close behind it to get it to speed up. When the car ahead doesn't speed up, Irwin puts his foot on the brakes and notices that they are very low.

31. The garage mechanic didn't have time to check out Wendy's car thoroughly. She is in a hurry to get downtown before the stores close, so instead of stopping at the stop sign, she just slows down and looks both ways.

32. Tina didn't get much sleep last night. She decided to visit a friend in the next town. Part way there, a heavy fog sets in.

33. Paul is on his way home from a party where he drank 4 oz. of alcohol in the last two hours. While he is driving he notices that the steering is a lot tighter than usual. He goes through a yellow light.

34. It is starting to snow and the tires on Rita's car are quite bald. She decides to keep driving even though she has been driving for several hours and is quite tired.

35. There is a heavy snow storm and John is on his way to the dentist. Suddenly he hears a clunk under his car and finds that he is having trouble steering.

36. Walter is at a party and drinks 4 beers in the last two hours. His best friend slips and falls down the stairs. Walter is in such a hurry to get his friend to the hospital, that he doesn't fasten his seat belt.

37. Mary's best friend has just died and she is so upset that her doctor gave her some pills to calm her down. The pills make her very drowsy but she decides to drive to the funeral anyway. Mary's car is very old and because of her friend's sudden death she didn't have time to take it to the garage for a general tuneup.

38. The steering is loose on Freda's car and she is out for a Sunday drive with a friend. None of them are wearing their seat belts.

39. Norm just got new contact lenses and they make his eyes water a lot. This is especially a problem because he is driving in a heavy fog. Norm is not wearing his seat belt.

40. Karen has a part-time job delivering parcels for the local drugstore. Because she is paid by the number of trips she makes, she doesn't like to waste time, so she always drives about 10 km/h (6 mph) over the speed limit. She didn't have time to fill up the windshield washers so, when a truck splashed mud all over her window she couldn't see.